



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,355	09/19/2003	Jyh-Shiou Hsu	TS01-848	8187
7590		03/08/2005	EXAMINER	
George O Saile		GOUDREAU, GEORGE A		
28 Davis Avenue		ART UNIT		
Poughkeepsie, NY 12603		PAPER NUMBER		
		1763		
DATE MAILED: 03/08/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/666,355	HSU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	George A. Goudreau	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on (9-19-03' to 12-22-03').
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-39 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 5, 10-13 and 22-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*George A. Goudreau*  
**GEORGE GOUDREAU**  
**PRIMARY EXAMINER**  
**3-05'**

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 9, 14-16, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gardner et. al. (5,863,824).

Gardner et. al. disclose a process for gate (203) on a wafer which is comprised of the following steps:

-A polysi gate electrode (203) on top of a pad oxide layer (205) are formed onto the surface of a Si wafer (201);

-The gate is patterned.;

-A first layer of oxide material is conformably formed onto the surface of the gate to form a type of first sidewall spacer (207) on the sides of the gate.;

-The width of the first oxide sidewall spacer on the polysi gate is measured and compared against a targeted value.; and

-A second Si<sub>3</sub>N<sub>4</sub> sidewall spacer (209) is formed onto the sidewalls of the first spacer. The thickness of the second Si<sub>3</sub>N<sub>4</sub> sidewall spacer is adjusted to compensate for any inaccuracies in the dimensions of the first SiO<sub>2</sub> sidewall spacer formed onto the sides of the polysi gate.

This is discussed specifically in columns 4; and discussed in general in columns 1-6. This is shown in figures 1-3.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-8, 17-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied in paragraph 2 above.

The reference as applied in paragraph 2 above fail to disclose the following aspects of applicant's claimed invention:

- the specific dimensions for the spacer layers, and gate electrode width, which are claimed by the applicant; and
- the specific method for forming the gate pad oxide layer which is claimed by the applicant

It would have been obvious to one skilled in the art to employ any of a variety of different methods for forming the gate pad oxide layer in the process, which is taught above including those, which are specifically claimed by the applicant. The usage of the specific means, which are claimed by the applicant for forming the gate pad oxide layer, is conventional or at least well known in the semiconductor processing arts. (The examiner takes official notice in this regard.) Further, this simply represents the usage of an alternative, and at least equivalent means for forming the gate pad oxide layer in the process taught above to the specific means, which are taught above.

It would have been obvious to one skilled in the art to form to form the spacer on the sidewalls of the gate electrode in the process taught above to the specific thickness

Art Unit: 1763

which are claimed by the applicant based upon the following. It would have been desirable to form spacers at a sufficient thickness that source, and drain implants can be formed at the proper distance from the sides of the gate electrode using the spacers as implant masks to prevent the implantation of the Si immediately adjacent the polysi gate electrode.

It would have been obvious to one skilled in the art to form the gate electrode to the specific width, which is claimed by the applicant based upon the following. It would have been desirable to form the gate electrode with a sufficient width to meet the current carrying needs of the gate electrode without forming the gate electrode with an excessive width, which would consume precious real estate on the chip to be fabricated.


5. Claims 5, 10-13, and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 26-39 are allowed.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication should be directed to examiner

George A. Goudreau at telephone number (571)-272-1434.

  
George A. Goudreau  
Primary Examiner  
Art Unit 1763